Science A–Z
UNIT ROADMAPS

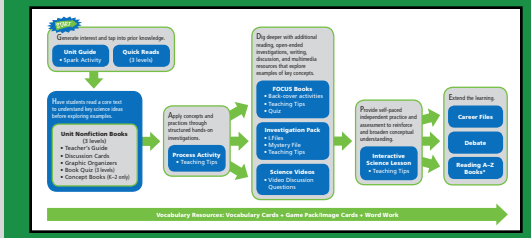
Teaching Tips

Unit Roadmaps present three suggested sequences for incorporating Science A–Z resources into instruction. Teachers should consider their curriculum requirements, instructional philosophy, and available instructional time as well as students' performance levels and interests. One model might be selected when teaching a certain science topic, while a different model might work best for another. All three roadmaps can also be mapped to the BSCS 5E Model.

Although the roadmaps present many of the resources in a linear pathway, certain resources can be used concurrently—in learning centers, for homework, or by applying the jigsaw method. All three models engage students in critical thinking, reading, writing, discourse, and the hands-on application of science and engineering practices.

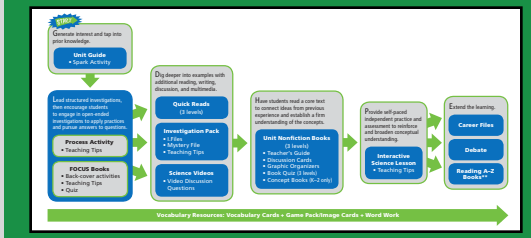
Compare and Select a Model

READ-FIRST MODEL



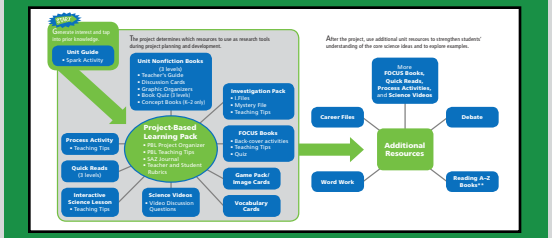
Students read texts to build a foundation of understanding with the core science ideas of the unit, then engage in hands-on investigations and use other resources to explore examples related to the topic.

DO-FIRST MODEL



Hands-on investigations allow students to construct their own explanations of core ideas through exploration, then read texts and complete more investigations to confirm or refine their explanations.

PROJECT-BASED MODEL



Students collaborate to plan and complete a project using other unit resources as tools to understand the core ideas. (This model is included with units that contain a *Project-Based Learning Pack*.)

Special Notes

- Digital versions: In addition to the print and projectable versions of resources, most reading materials, quizzes, and multimedia are available to students electronically on Kids A–Z.
- More resources: In addition to the resources listed on the *Unit Roadmaps*, each unit provides tools that can further support instruction, such as *Science Diagrams*, *Graphic Organizers*, *Science Fair Project Ideas*, a *Retelling Rubric*, and *Book Assembly Guides*.
- NGSS: To access coherent sequences of phenomenon-based lessons and assessments designed for the Next Generation Science Standards*, visit the Storylines page on Science A–Z.

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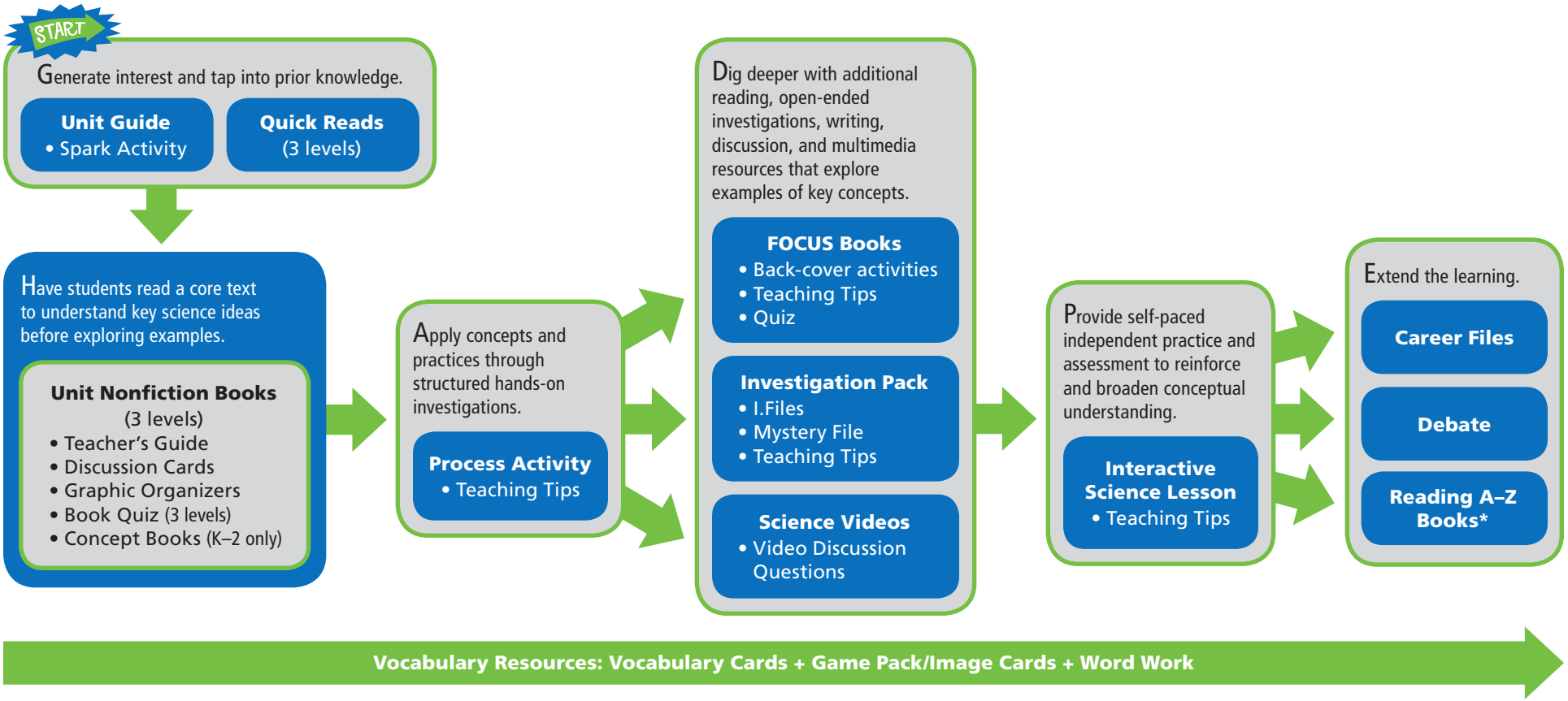
Read-First Model

In the **read-first** model, students begin by reading texts that help them build a foundation of understanding with the core science ideas of the unit. Then they engage in hands-on investigations and use other resources to explore examples related to the concepts they read about. Students learn about general concepts before using deductive reasoning to apply them to specific examples.

Vocabulary resources can be used at multiple points throughout the unit to develop and strengthen students' fluency with the disciplinary language of science. **TIP:** Challenge students to maintain a concept web throughout the unit that connects the examples they explore later in the roadmap back to the core ideas they read about in the *Unit Nonfiction Book*.

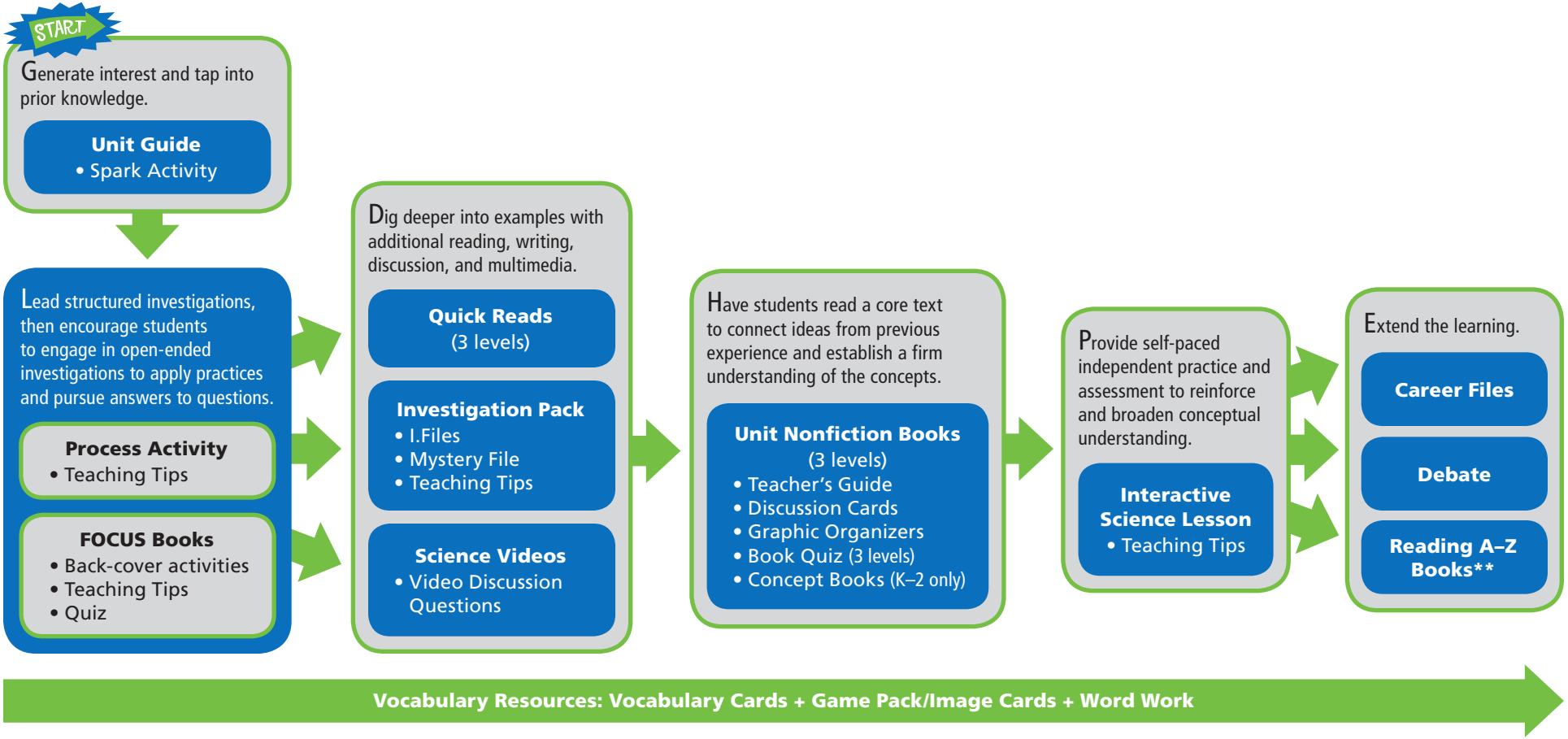


* Each unit includes one free book from Reading A–Z. To access other titles related to the science topic, a subscription to Reading A–Z or Raz-Plus is required.

EARTH, MOON, AND SUN

Do-First Model

In the **do-first** model*, students are immersed in unit concepts by completing hands-on investigations that allow them to apply science and engineering practices and construct their own explanations of core ideas. Then students read texts, watch videos, and complete more investigations that help them confirm or refine their explanations. Vocabulary resources can be used at multiple points throughout the unit to develop and strengthen students' fluency with the disciplinary language of science. **TIP:** Have students use a science journal to record the examples they explore through activities and readings, then challenge them to design a concept web that connects those examples to the core ideas they read about in the *Unit Nonfiction Book* toward the end of the roadmap.



* This model may also be referred to as the *discovery method*, in which students use inductive reasoning to determine broad concepts by first exploring examples.

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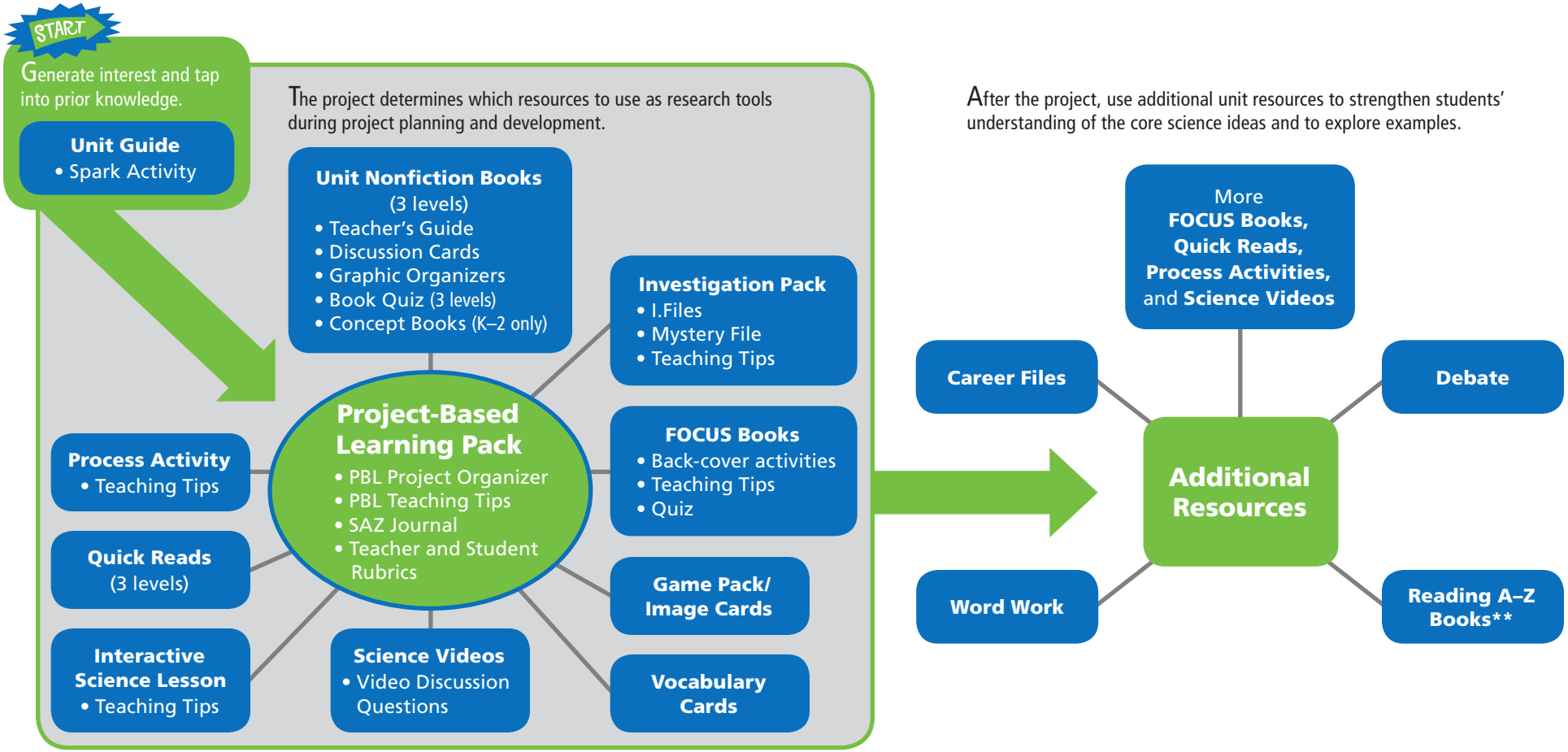
Project-Based Model

In the **project-based** model*, students work in teams to investigate a science question or design a solution to an engineering challenge. The *PBL Project Organizer*, *SAZ Journal*, completed project, and group presentation all allow students to demonstrate what they have learned and accomplished. The *PBL Teaching Tips* help teachers facilitate the project, while rubrics for teachers and students can be used to assess group and individual performance. During planning and execution, students use other unit resources to build their understanding of core concepts that they can apply to their project.



* This model is sometimes referred to as a *problem-based* approach to learning, in which the objective is to solve a problem. In Science A–Z *Project-Based Learning Packs*, students do both—solve a problem and produce a product.

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